

Work Order ID 51280

August 13, 2009 11:31:26 AM



Page 1

Item ID: D205-634-041

Accept



Setup Start



Revision ID: D

Stop



Item Name: Replacement Skidtube

Start Date: 8/13/09 Start Qty: 1.00



Cust Item ID:

Required Date: 10/13/09 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: CZ MF Date: 09/08/13 Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2580	Rev D								

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

N/A

110

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

120

0.00



Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends

2- C'sink holes as per dwg without cutting fluid

3- Prepare tube for welding, remove alodine as required.

4- Scribe batch number insied aft end of tube.

1 0 - AW M 9-10-2

130

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

27 Solidos

4 f

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Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

140

0.00



Skidtubes

Memo

0.00

Skidtubes

1-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R□□□ Aluminum Rod

M111999

BE 08/10/09

2-Prep per QSI 005 and weld crossbolt spacers D2579 as per Dwg. D2580, QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R□□□ Aluminum Rod

M111999

BE 08/10/09

3-Grind welds as per Dwg D2580 Grind flush ridge made from bending

4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64", adjust stopper not to hit web. Debur

5-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Debur holes

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

AWM 9-10-13

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Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 2) 8/13/13 0.00				(X)	/		
160 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 2) 8/13/13 0.00				(X)	/		
170 HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 Memo	0.00 2) 8/10/14 0.00				(X)	Ø		

W/O:		WORK ORDER CHANGES					
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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum M112260 Memo START TIME: 9:15AM OVEN TEMPERATURE: 320°F FINISH TIME: 9:45AM	0.00 0.00	⇒ JV	09/10/14		(X1)	6		
190 QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00	BR	09-10-14	①				

W/O:		WORK ORDER CHANGES					
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Accept

[REDACTED]

Setup Start

Stop

[illegible]**Cust Item ID:**[illegible]

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Operation Description

Set Up/ Run Hours

**Draw
Number**

Draw	Plan
Rev.	Code

**Accept
Qty**

Reject
Qty

Reject Number

**Insp.
Stamp**

200

0.00

Abstract

0.00

HandFinish

Hand Finishing

Memo

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates
A/R ☐ ☐ ☐ Sikaflex-291 ☒ *M112591*
Sikaflex expire date: *10/29*

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive
A/R ☐ ☐ ☐ Sikaflex-291 ☒ 112391
Sikaflex expire date: 10/25

5-Wing Walk as per Dwg D2580 and QSI 005 4.4
Batch: 11A 112106

~~11~~ 09-10-14 (1)

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Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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210

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

220

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD205-634-041

Location:

PPP Rev: PPP 51493

230

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

⊗ /

PC 9/10/2 2/1

09/10/23
MK
09-10-23

Picklist Print

August 13, 2009 11:31:26 AM

Page 1

Work Order ID: 51280

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube

Comments:

Start Date: 8/13/09

Required Date: 10/13/09

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2580-1RevD		Manufactured	No			110	Each	8.0000	1.0000			
205 Skidtube bent detail												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG

6

50757

6

Main Warehouse

ST

2

50758

2

D2576-3RevG

Manufactured No

140

Each

147.0000

1.0000

Step (maching detail)

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

147

43504

46

46661

101

1 BE 09/10/09

BS1752
-D9-9-29

W/O:		WORK ORDER CHANGES					
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Work Order ID: 51280

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube

Comments:

Start Date: 8/13/09

Required Date: 10/13/09

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

D2579RevE		Manufactured	No			140	Each	92.0000	20.0000			
-----------	--	--------------	----	--	--	-----	------	---------	---------	--	--	--



Crossbolt Spacer

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

92

43988

4

46434

4

46956

2

47797

28

48272

54

20
B-S/S 25 AWM
7-10-2

D2855RevA

Manufactured No

200

Each

37.0000

1.0000



Cap

Warehouse Loc Qty Loc Code

Location

Main Warehouse

FP6

37

50513

37

50770

1 B/L 09-10-14,

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube


Comments:

Start Date: 8/13/09

Required Date: 10/13/09

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN3-5A 		Purchased	No			200	Each	2,540.000	2.0000			
Bolt												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	2540	
100188	226	
105057 ✓	2246	
15205	68	

2 BK 09-10-14.

AN960JD10L



Washer

Purchased

No

200

Each

6,733.000

2.0000

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	6733	
101291	16	
104885	153	
105793	236	
109632 ✓	1328	
110985	5000	

2 BK 09-10-14.

W/O:		WORK ORDER CHANGES					
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Comments:

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Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
ALS7-1032-130		Purchased	No			200	Each	3,628.000	50.0000			



Insert

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST 112772

3628

105855

16

108606

52

111529

1560

111779

2000

50 BR09-10-14.

AN3C4A

Purchased

No

200

Each

1,222.000

50.0000



BOLT

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

1222

112082

40

112314

1182

M112724

27 BR09-10-14,

23 BR09-10-14,

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Shop Packet Print

Page 4

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Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN960C10L  washer		Purchased	No			200	Each	3,764.000	50.0000			

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
OFFSHORE		
FG	100	
103585	100	
Main Warehouse		
ST	3664	
112116 ✓	3664	

D3566-13RevC

Manufactured

No



Gasket

200

Each

29.0000

1.0000



<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	29	
45717	1	
46889	2	
48166	10	
50265	16	

51606

50 BR 09-10-14.

1 BR 09-10-14.

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D3566-5RevC		Manufactured	No			200	Each	4.0000	1.0000			



Gasket

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	51669	4
	36113	1
	46186	1
	47318	1
	48167	1

1 BR09-10-14

D3566-1RevC

Manufactured No

200

Each

13.0000

2.0000



Gasket

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	52612	13
	46349	1
	47434	2
	48557	3
	51218	7

2 BR09-10-14

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D3564-11RevD		Manufactured	No			200	Each	15.0000	1.0000			

Wearshoe

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST 51524

15

45823

1

48553

4

50112

10

1 BR09-10-14

D3564-13RevD

Manufactured

No

200

Each

39.0000

1.0000

Wearshoe

Warehouse Loc Qty Loc Code
Location

Main Warehouse

FP17

24

48554

2

50270

22

Main Warehouse

ST

15

45409

3

46495

10

47867

2

52059

1 BR09-10-14.

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D3564-9RevD		Manufactured	No			200	Each	3.0000	1.0000			
												
Wearshoe												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST 51675 3

44659 1

45825 1

48556 1

1 BL 09-10-14

D3564-5RevD

Manufactured No

200

Each

6.0000

1.0000



Wearshoe

Warehouse Loc Qty Loc Code

Location

OFFSHORE

FG 51655 2

34806 2

Main Warehouse

FP19 2

48555 2

Main Warehouse

ST 2

45824 1

47433 1

1 BL 09-10-14

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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

August 13, 2009 11:31:26 AM

Work Order ID: 51280



Parent Item: D205-634-041RevD



Parent Item Name: Replacement Skidtube

Start Date: 8/13/09

Required Date: 10/13/09

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2594-3RevC		Manufactured	No			200	Each	670.0000	16.0000			
O-Ring, 205 Skidtube												

Warehouse Loc Qty Loc Code

Location

Main Warehouse *51613*

ST *51757* 670

27168 44

29908 626

16 BK 09-10-14,

D2594-1RevC

Manufactured No

200

Each

476.0000

16.0000



Plug, 205 Skidtube

Warehouse Loc Qty Loc Code

Location

Main Warehouse *51957*

ST 476

42221 16

42807 92

43884 3

46435 2

47251 363

16 BR 09-10-14,

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN #	DRAWN BY RH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 #

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

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NO 31280

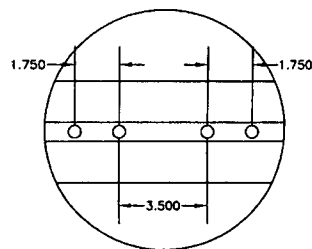
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

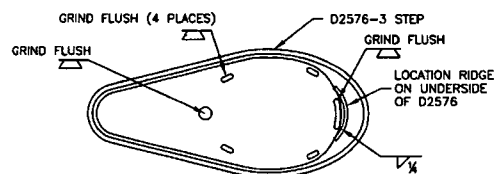
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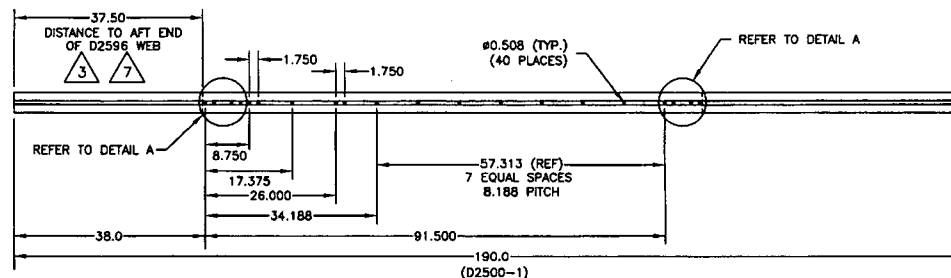
DETAIL A
SCALE 5:24



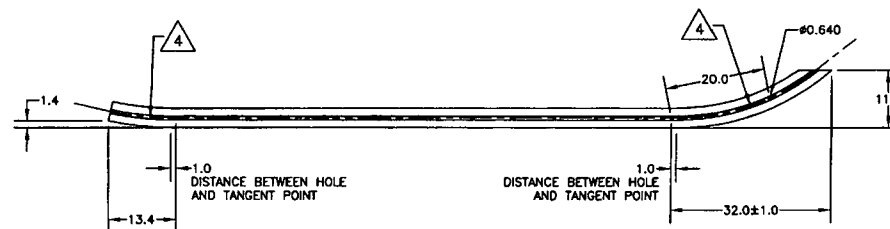
DETAIL B
SCALE 5:24



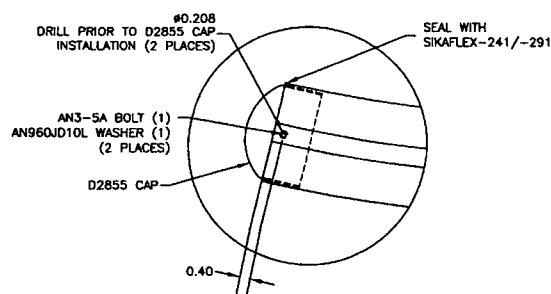
D2580-1 DRILLING DETAIL



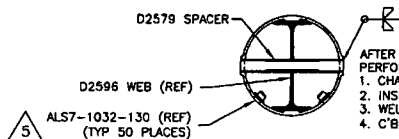
D2580-1 BENDING AND CUTTING DETAIL



DETAIL C
SCALE 5:24



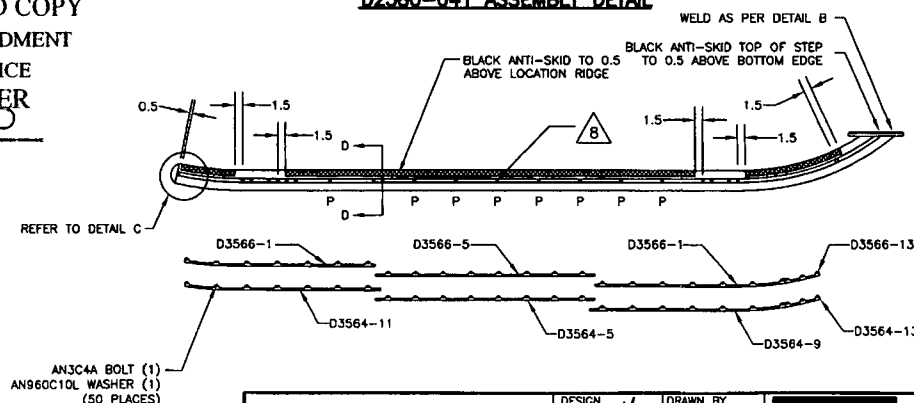
SECTION D-D
SCALE 5:24



AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO #0.437 X 1.00 DEEP

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D2580-041 ASSEMBLY DETAIL



D2580-041 NOTES

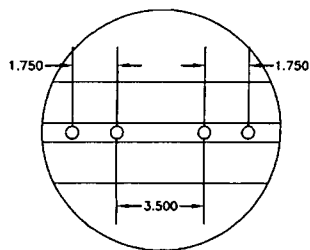
- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

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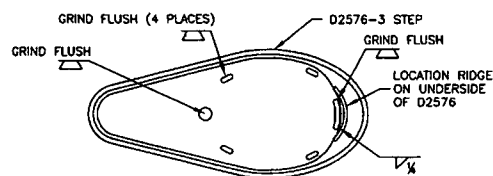
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CHECKED	APPROVED	DRAWING NO.	REV. D
DATE	TITLE	D2580	SHEET 2 OF 3
07.02.27	205 SKIDTUBE ASSEMBLY	SCALE	1:24

DETAIL E
SCALE 5:24

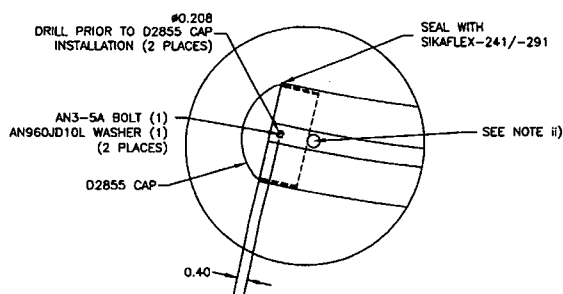


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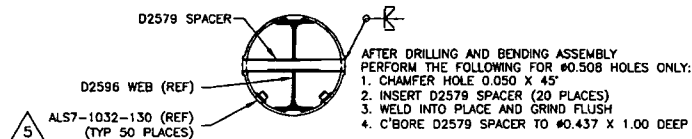
DETAIL F
SCALE 5:24



DETAIL G
SCALE 5:24

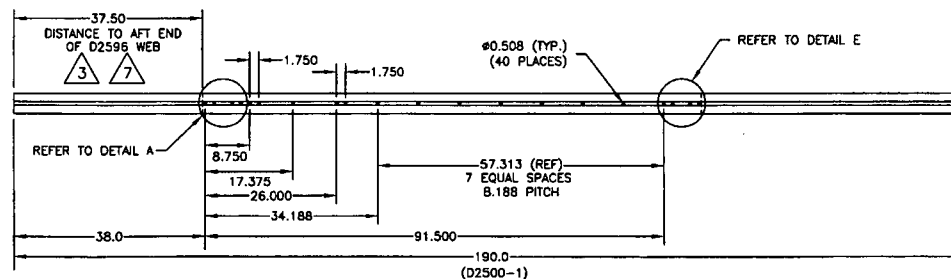


SECTION H-H
SCALE 5:24

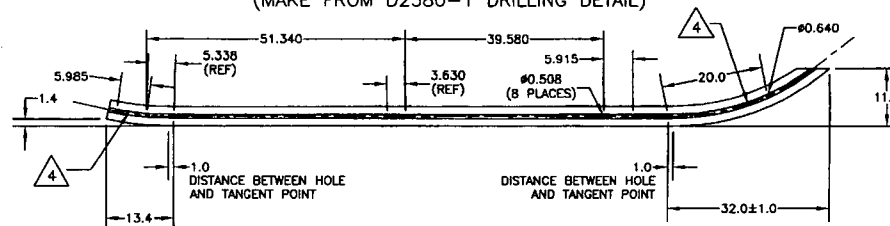


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NO. 51280

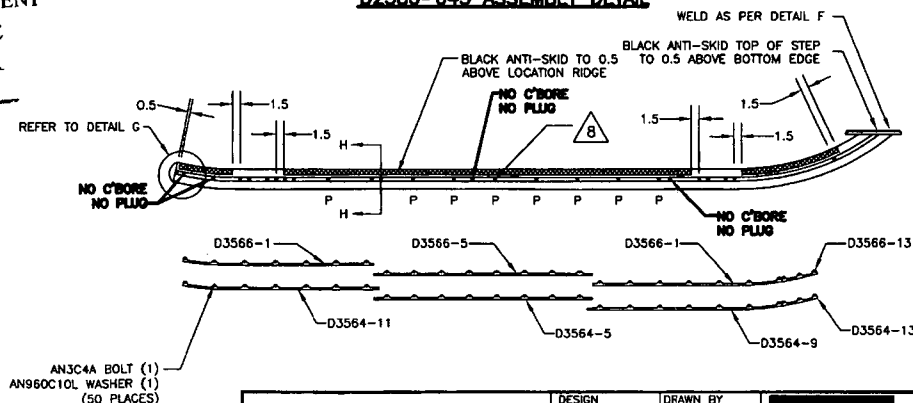
D2580-1 DRILLING DETAIL



D2580-5 BENDING AND CUTTING DETAIL
(MAKE FROM D2580-1 DRILLING DETAIL)



D2580-045 ASSEMBLY DETAIL



D2580-045 NOTES

- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

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DESIGN RH	DRAWN BY RH	DART	DART AEROSPACE LTD. HARRISBURY, ONTARIO, CANADA
CHECKED H	APPROVED H	DRAWING NO. D2580	REV. 0 SHEET 3 OF 3
DATE 07.02.27	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24	

NO. 212

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barday Elliott
Job number: 51505
Part number: D205-634-041
Description: 205 skid tube
Welding Process: Tig[☒] Mig[]
Base material: Aluminium
Current: AC[] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier Pat. Dent Date of Test Coupon 09.10.09
Welder Barday Elliott Date of Test Coupon 09-10-09

The above named individual is qualified in accordance with AWS D17.1.2001 to weld